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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,605	02/02/2001	Tadahiro Ohmi	SUGI0064	7328

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EXAMINER
LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 05/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/773,605	OHMI ET AL.	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,22,23,25,26,28 and 30-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,22,23,25,26,28 and 30-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 June 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1-28-05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 2, 2005 has been entered.

Response to Amendment

2. Applicant's amendment submitted on March 2, 2005 has been received and carefully considered. Claims 2-21, 24, 27 and 29 are cancelled. Claims 1, 22, 23, 25, 26, 28 and 30-33 remain active.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 22, 23, 25, 26, 28 and 30-33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, it is unclear as to where support may be found for the newly added structural limitation that, "the second reflector includes a dimension exceeding one half the first diameter of the second reactor structural component," (lines 24-25). Although applicant points to Figures 5 and 12 in support of the amendment, Patent Office drawings cannot be relied upon for detail as to disclosure since they are not to scale.

Regarding claim 23, it is unclear as to where support may be found for the newly added structural limitation that, "the plate has a thickness exceeding one half of the first distance," (lines 21-22). Although applicant points to Figure 6 in support of the amendment, Patent Office drawings cannot be relied upon for detail as to disclosure since they are not to scale.

Regarding claim 26, it is unclear as to where support may be found for the newly added structural limitation that, "the first reflector is a thick plate that includes... a thickness exceeding one half of the first distance," (lines 20-22). Although applicant points to Figure 6 in support of the amendment, Patent Office drawings cannot be relied upon for detail as to disclosure since they are not to scale.

Regarding claim 28, it is unclear as to where support may be found for the newly added structural limitation that, "the second reflector includes a dimension exceeding one half the diameter of the second reactor structural component," (lines 23-26). Although applicant points to Figures 5 and 12 in support of the amendment, Patent Office drawings cannot be relied upon for detail as to disclosure since they are not to scale.

4. Claims 1, 22 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 28, it is unclear as to the structural limitation applicant is attempting to recite by, "the second reflector includes a dimension" (see claim 1, line 24; claim 28, lines 24-25), because it is unclear as to what "dimension" applicant is referring to (e.g., diameter, width, etc.).

Claim Rejections - 35 USC §102 and §103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 22 and 28 are rejected under 35 U.S.C. 102(b) as anticipated by, or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ohmi et al. (WO 98/57884). [NOTE: the English Language Equivalent (US 6,093,662) is being cited below, for translation purposes

only]. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Regarding claims 1 and 28, Ohmi et al. (FIG. 7; column 7, lines 35-46) discloses an apparatus comprising:

a reactor **1** having an upstream gas inlet side, a downstream moisture outlet side, and a catalyst (i.e., a platinum-coated catalyst layer; column 10, lines 7-25) for generating moisture from hydrogen and oxygen (i.e., supplied via **H_2**--->, **O_2**--->); and

means for reducing pressure provided on the downstream side of the reactor **1**, wherein the means comprises a filter **F_3** and valves **V6**, **V7** (FIG. 7), or in a prior embodiment, suction regulating valve **SV**, valves **V4**, **V5**, **V6** for vacuum pump **P** (FIG. 1).

The filter **F_3** is inherently capable of reducing pressure downstream of the reactor and maintaining an internal high pressure within the reactor, as evidenced by the filter comprising "a squeezing mechanism that permits adjustment of pressure or produces pressure loss", as defined on page 12, lines 9-15, of Applicant's specification. The valves **V4**, **V5**, **V6**, **V7** or **SV** are also inherently capable of reducing pressure downstream of the reactor and maintaining an internal high pressure within the reactor, as evidenced by the valves being capable of adjusting the flow rate of moisture, and hence, the pressure within the reactor.

Ohmi et al. (FIG. 9; column 9, line 1 to column 10, line 6) further discloses reactor **1** comprising:

a first reactor structural component **2** having a material gas supply joint **4** defining a material gas supply passage **4a**;

a second reactor structural component **3** of a first diameter having a moisture gas take-out joint **5** defining a moisture outlet passage **5a**, wherein the structural components **2**, **3** are mated to form a reactor shell **1** having an interior space **1a**, and wherein the second component **3** defines an inside wall surface **3a**; and

reflectors comprising a first reflector (i.e., inlet reflector unit **9**) disposed in the interior space **1a** to face the material gas supply passage **4a**, and/or a second reflector (i.e., outlet reflector unit **12**) disposed in the interior space **1a** to face the moisture outlet passage **5a**; wherein the first and second reflectors **9** and **12** may comprise identical flat plates of a given thickness (i.e., flat disk portions **9b** and **12b**, made of stainless steel and of about the same diameter; see FIG. 9; column 9, line 56 to column 10, line 6) symmetrically disposed in the interior space, and wherein the catalyst comprises a platinum coated catalyst layer **13** provided on the inside wall surface **3a** of the second reactor structural component **3**. Given that the direction of inclination is relative, as instantly claimed, the apparatus of Ohmi et al. meets the claims, since the first reflector **9** and second reflector **12** each comprise a peripheral portion (i.e., casing portions **9a** and **12a**; see FIG. 9) inclined in cross section, towards their respective structural components **2** and **3**.

Additionally, the apparatus comprises a process chamber (i.e., semi-conductor manufacturing facilities **SM**; FIG. 7), wherein reactor **1** is connected to feed the moisture gas to the process chamber **SM**, via a flow-line containing the means for reducing pressure.

In view of the newly added structural limitations, Ohmi et al. further discloses that the second reflector **12** may include a dimension exceeding one half the first diameter of the second reactor structural component **3**. In particular, Ohmi et al. (column 9, line 65 to column 10, line

3) discloses that,

> "In FIG. 9, the inlet reflector unit **9** and the outlet reflector unit **12** are of about the same diameter. The outlet reflector unit **12** may be enlarged to *approximately 90 mm in diameter*. The moisture generation reactor **1** of FIG. 9 is *114 mm in outside diameter* and approximately **31** m in thickness."

Ohmi et al. is silent as to reactor **1** generating moisture from the catalytic reaction of hydrogen and oxygen at a temperature "not higher than 450°C", or at a temperature "set in the range of 300°C to 450°C", or at a temperature "selected from the group consisting of 300°C, 350°C and 400°C," or at a temperature such that "the difference between the set temperature and an ignition point of hydrogen is set between 190°C and 230°C." However, Ohmi et al. (column 7, lines 57-63) discloses that,

> "The gas preheating coils H_1 and H_1' are to heat the mixture gas or oxygen to a desired temperature not higher than 200°C. Reactor **1** is provided with a heater and, as necessary, a cooling unit so that if the reaction heat pushes up the temperature in the reactor in operation to over 500°C. (which rarely happens, though), the cooling unit will be activated to bring the temperature down below 500°C."

Thus, the apparatus of Ohmi et al. is *inherently capable of* maintaining the catalytic reaction of hydrogen and oxygen below the upper limit of 450 °C, or within the range of 300 °C to 450°C, or at any of the instantly recited temperatures, by simply adjusting the temperature of the gas preheating coils H_1 and H_1' or activating the cooling equipment. Furthermore, *it would have been obvious* for one of ordinary skill in the art at the time the invention was made to select an appropriate temperature for catalytic reaction in the reactor **1** of Ohmi et al. (i.e., such as the instantly recited temperature ranges), on the basis of suitability for the intended use and absent showing any unexpected results thereof, because it has been held that where the general

conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Also, numerical ranges that overlap prior art ranges were held to have been obvious. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960).

Regarding claims 22, the internal pressure within the process chamber **SM** is not considered an element of the apparatus but a process limitation, and therefore, the apparatus of Ohmi et al. structurally meets the claim.

Response to Arguments

6. Applicant's arguments with respect to claims 1, 22, 23, 25, 26, 28 and 30-33 have been considered but are moot in view of the new ground(s) of rejection, as necessitated by amendment.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 6,733,732; US 2004/0137744; and US 2004/0247502 are further presented to illustrate applicant's related inventions.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung
May 5, 2005 JAL

Hien Tran

HIEN TRAN
PRIMARY EXAMINER